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CASE REPORT

Autoimmune bicytopenia in pulmonary tuberculosis. Report of a pediatric case

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KEYWORDS
Pulmonary tuberculosis;
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Summary
Background: The haematological abnormalities are common in patients with tuberculosis (TB). However, autoimmune bicytopenia is extremely rare in childhood TB.
Case report: A 11-year-old girl presented with 4-week history of fever and cough associated to weight loss. The diagnosis of active pulmonary TB was achieved based on radiological and microbiological findings. Simultaneously, laboratory investigations revealed autoimmune haemolytic anaemia associated to immune thrombocytopenia. These haematological disorders were successfully treated with anti-tubercular drugs only.
Conclusion: Tuberculosis should be included in the etiological investigation of autoimmune ''cytopenias'' in childhood, specially in endemic countries, since they may respond to anti-tubercular drugs.

Introduction

Tuberculosis (TB), remains a major health problem worldwide specially in the developing countries. Haematological abnormalities such as anaemia, leukocytosis, or pancytopenia are common disorders in patients with TB.[1–3] However, autoimmune haemolytic anaemia (AIHA)[4,5] or immune thrombocytopenia (IT)[6,7] have been rarely reported in TB. We describe here a case of AIHA associated to IT occurring in a girl with active pulmonary tuberculosis; these haematological abnormalities responded successfully to anti-tuberculous therapy.

Case report

A 11-year-old girl presented to the pediatric A department at Children's hospital of Tunis for a 4-week history of fever and cough. She also complained fatigue and weight loss but no night sweats. There was no history of tubercular contact in the family. She was vaccinated with BCG at birth and had not been receiving any medications on presentation. On examination, the girl was, febrile at 39 °C, lethargic and weighing 21 kg. The respirations were 24 breaths/mn and the pulse was 90 beats/mn. The chest

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auscultation revealed bilateral crackling rales. The remainder of her examination showed nor palpable lymph nodes neither organomegaly. Chest X-Ray showed consolidation right lower lung field (Fig. 1a and b) and CT scans revealed multi lobar involvement with cavities and bronchiectasis (Fig. 2). Laboratory tests showed 11.1×10^9/L white blood cells (85% neutrophils, 7% lymphocytes, 5% monocytes, 3% eosinophils), 588×10^9/L platelets and the rate of haemoglobin was at 12.3 g/dL. Erythrocyte sedimentation rate was at 110 mm/h and C reactive protein was at 228 mg/l. Haemocultures and cytobacterial sputum tests were negative. Although she received large antibiotherapy with cefotaxim, vancomycin and erythromycin, no clinical improvement has been noted. Tuberculin skin test was nonreactive. Fifteen days after admission, the girl became pale and physical examination noted cutaneous petechiaes in the chest. The haemoglobin rate dropped to 7.8 g/dL, (MCV: 87.9 f1; MCH: 27.5 pg; reticulocyte count:140.10^9/L), the platelets count decreased also to 5.10^9/L. A repeat test confirmed regenerative anaemia (7.7 g/dL) and thrombocytopenia at 4.10^9/L, while white blood cells remained within normal levels. Peripheral blood smear revealed polychromasia, spherocytes, poikilocytosis and a paucity of platelets. Serum bilirubin was at 40 μM/L with an indirect fraction at 32 μM/L while lactate dehydrogenase rate was at 1200 UI/L (normal range 190—445 UI/L). A direct Coomb's test was positive. A repeated test was also positive, and warm agglutinins were detected as the responsible antibodies. Platelet coombs and platelet antibody tests were negative. Serology for mycoplasma, human immuno-deficiency virus, cytomegalovirus, and Epstein Barr virus were negative. Antinuclear antibody and anti-DNA antibody tests were also negative. Sputum-smear microscopy was positive for acid fast bacilli. Culture, grew mycobacterium tuberculosis, which was sensitive to the first-line drugs. Based on the clinical features and investigations a final diagnosis of active pulmonary tuberculosis with AIHA and IT thrombocytopenia was reached. The patient was started on four antituberculous drugs (rifampicin 300 mg, isoniazid 100 mg, and pyrazinamid 500 mg orally associated to streptomycin 600 mg intramuscularly daily). No further haemorrhagic complications were observed. during the thrombocytopenia period. Within two weeks, she became apyretic, and her appetite improved markedly. Simultaneously, the haematological features resolved. The platelet count increased above 50.10^9/L within 7 days and reached the normal levels within 15 days. The coomb's test became negative at 21 days and the haemoglobin rate increased to 13.5 g/dL within 2-months of tuberculosis therapy. Six months later, the girl was well in follow-up. She gained 9 kg, and no further haematological anomalies were observed.

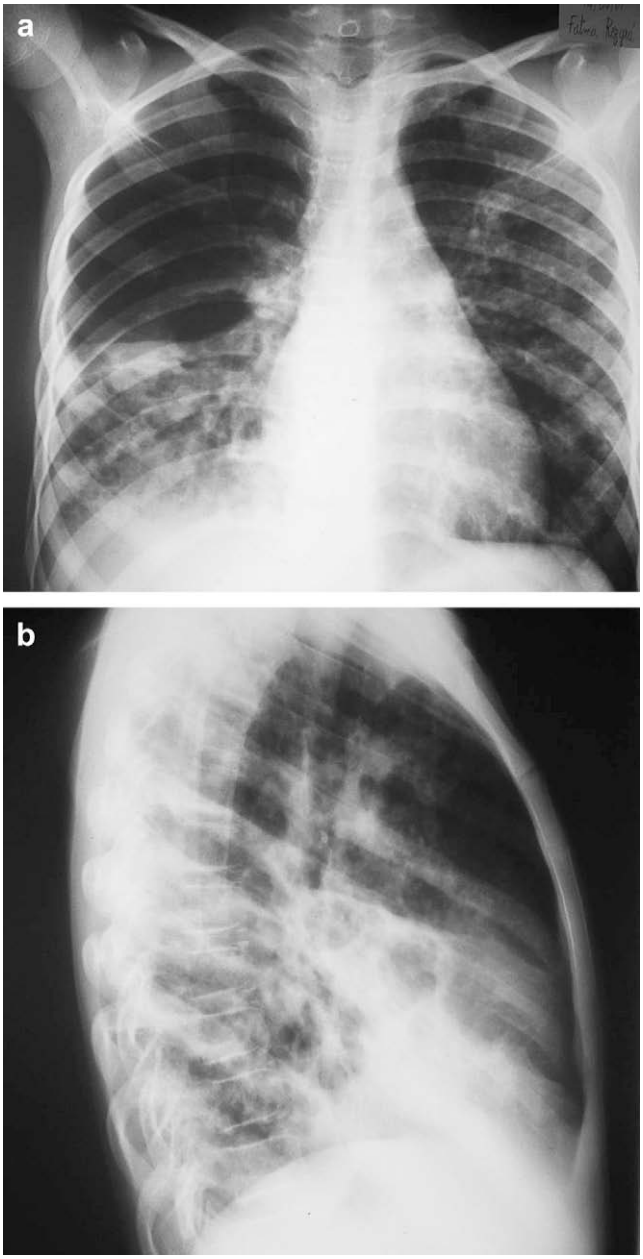

Figure 1 a and b, Chest X plane, Note consolidation of right lower lung field.

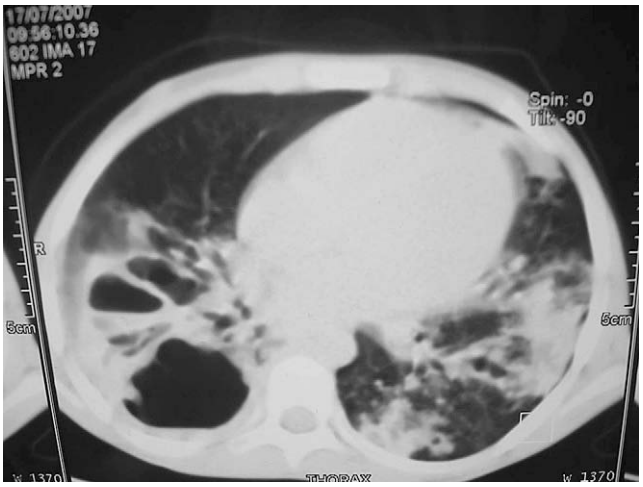

Figure 2 CT Scans, Note multi lobar involvement with cavities and bronchiectasis.

Discussion

Combined autoimmune cytopenias are extremely rare manifestations of tuberculosis, they have been described in adult with disseminated TB.[8] However, the occurrence of isolated AIHA or IT purpura was reported in adults with several sites of TB: miliary,[9–11] pulmonary TB[7,12] and intestinal TB.[13] In childhood literature, few cases of AIHA or IT purpura associated to TB were published, respectively, with disseminated TBC,[5] abdominal TB[4] and lymphadenitis TB.[14] Our patient demonstrated, clinical and radiological features with microbiological evidence of an active pulmonary TB. During this respiratory disease, laboratory findings revealed haemolysis and thrombocytopenia. The autoimmune mechanism of haemolytic anaemia was confirmed with positive antiglobulin test, however, we failed to prove the autoimmune nature of the thrombocytopenia with immunological tests. The simultaneous occurrence of both anomalies before the beginning of anti-tubercular drugs suggest the autoimmune hypothesis. Further more, the normalization of the platelet count and the haemoglobin rate associated to the negativation of coomb's test with anti-tubercular therapy give an additional argument. TB-induced IT or AIHA may be a life threatening conditions because of severe haemolysis[4,5] or marked bleeding in severe thrombocytopenia.[12] These conditions led authors to combine additional treatment with anti-tubercular drugs such as high-dose immunoglobulin in IT[7,12] or blood transfusions,[5,12] corticosteroids[4,5,12] and even splenectomy[10] in AIHA. Our patient, was given anti-tubercular drugs alone since the haemolysis was moderate and the thrombocytopenia was not complicated by mucosal bleeding. Our case is similar to previous reports in adult literature in which haemolysis associated with tuberculosis has responded to anti-tubercular therapy.[9,13,15] Recently,[14] TB-induced IT purpura was also successfully treated in a 8-year-old girl without requiring corticosteroids or immunoglobulin. *To conclude*, we reported a pediatric case of autoimmune bicytopenia associated with active pulmonary tuberculosis successfully treated with anti-tuberculosis drugs. Although this association is extremely rare, tuberculosis should be included in the etiological investigation of autoimmune ''cytopenias'' in childhood, specially in endemic countries of TB, since they may respond to anti-tuberculous drugs alone.

Conflict of interest statement

The authors wish to declare no conflicts of interest with reference to the submitted manuscript.

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